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A NATURE EXCURSION

JENNIE HALL

We believe in studying nature out of doors. An eighth grade may go to dunes and lake ridges and ravines with the special purpose of studying physiography; a fourth or fifth grade may go to the same places to collect flowers, or to gather fruits for preserving; a first or second grade may seek there the geographical setting for stories of tree men or desert tribes. Often, all three of these purposes may combine, in varying degrees, in one excursion. Besides, there is always in the child's mind the added desire to have a good time, and in the teacher's mind the wish to found and foster in children a loving and intelligent interest in out-of-doors. Nature excursions have come to be one of the chief pleasures of our pupils. Yet these visits are far from being junketing trips. We go to answer, by original observations, questions that have arisen in class-room study, and to collect material for further work at school. The following exercise was given by a fourth grade after two visits to the sand dunes. These trips were made as the accompaniment to many weeks' study and simple experimentation in connection with soil formation. The children ground stones to make sand; pulverized rock and dissolved limestone to make clay; washed, sifted, and burned loam to find its constituents. The exercise may exemplify to a sympathetic reader the purposes of such trips, their relation to class-room work, amount of observation made in the field, the pupils' earnest attitude toward an excursion, the wholesome experiences and interests that it engenders, and the pleasure of the children in such a day in the open.

A boy. I am going to tell you how sand is made. Some sand that we found is made out of ground quartz. We looked at it through a microscope, and it looks like little pieces of quartz. Sand is of different colors, on account of the different colored stones that have been ground up by the waves. These are some stones that we found quite a way out in the lake, that had been broken up. As soon as they are ground up smaller, the waves will wash them up closer to the shore. Here are some we found closer to the shore. They were ground up by the waves and washed up further. This is some sand that we found still nearer to the edge of the water.

*Ralph (eighth grade).*¹ The present outlet of Lake Michigan is through the Straits of Mackinac into Lake Huron, then through Lake Erie into Lake Ontario and the St. Lawrence River. When the glacier covered the lake, it had to have another outlet, and that was through the Sag into the Illinois river, and then into the Mississippi. The southern part of the lake was then much larger than it is now. The shore was twenty miles from the

¹ This class was studying the topography of the Chicago region and was asked to contribute to our exercise an explanation of the presence of the sand in the dune district.



Roots Uncovered by Moving Sand

present shore, and as the glacier receded, the lake grew smaller at the southern end. As the water receded, it left different beaches. There are five or six of these different beaches between the old shore and the present shore, and it covered that whole country with sand.

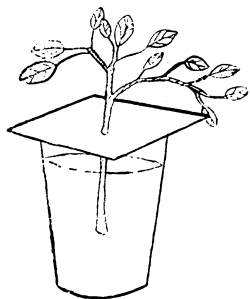
Drummond. In Lake Michigan there is a current from the north. The sand that is made by the grinding up of the stones comes down with the current. The current is not strong enough to be noticed, but when there is a storm the waves raise the sand, and the current carries it along until it comes down to the southern part of Lake Michigan, and it is washed against the shore. The undertow carries some of it back, but there is another wave coming along, and that will meet the undertow. The sand will drop and make a sort of small hill or sand-bar, and after a while that bar keeps getting bigger and bigger until it comes to the surface, and then if there is a wind towards the shore, the sand will blow towards the shore, and if there is a breeze from shore blowing towards the lake, the sand from the shore will blow to the sand-bar and make a dune there. After a while there will be water left on the land side of the dune, and the water will be stagnant there. After a while the water will evaporate, but the water from the lake will keep seeping through the sand under the dune into this marsh, because the bottom of the marsh is a little below the lake level. This apparatus shows how the water will go under the dune, because it always seeks its own level. Out in the yard, in the sand table, we made some sand dunes, and we made a lake around them and left a hollow in the sand. You can look at it in the play period. The water has soaked through the sand and come to a level with the water outside.

Hugh. When we were at the sand dunes, we saw a log, and it was about half covered up with sand, and if the wind keeps blowing, it will be covered by a little dune. And Delia, one of the girls that went with us, put her hat down, and when we went to get it, it was almost covered with sand.

Leah (fifth grade). Out in the sand dunes, we saw a tree with its roots above the ground (*showing sketch*). We think the sand must have covered it up this far on the trunk, and the roots came out of the trunk, and now that the sand has blown away, it has left the roots sticking out. Here are pictures showing that the sand has covered trees half-way up, and we think it must have been the same way with the tree we saw. Here are dead trees standing up (*showing sketch*). We think that once the sand covered all these trees, and while they were covered they died. Then the sand blew off, and you can see them dead.

Ruth. This (*showing specimen*) was a branch growing on the trunk of a cottonwood tree, and the wind bent it down. The sand blew over it and covered the leaves and twigs. When they were covered, they changed to roots; instead of leaves and branches, it has started in to root.

Herman. A marsh won't stay in one place long; always dries up. The water evaporates through the plants. We have proved this by putting some water into this glass. We put some paper over it, and it cannot evaporate through the glass, and so if it evaporates, it must evaporate through the plant. There is now mist inside of the top glass. When the plants in the marsh die down, they make soil. We know this because if you look at the soil closely, you can see leaves. And if there is a dune or anything near by, the wind may blow sand into the marsh, and so fill it up.



Evaporation

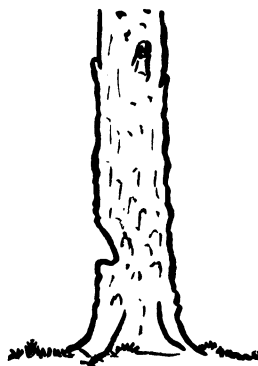
Elizabeth. Margaret and Virginia in the fourth grade went out to Dune Park again, and they were climbing on a sand dune, and they saw some flint, and they thought that was a strange place to find flint, and they thought they would dig down to see

if they could find anything else, and they found some pieces of Indian pottery and a perfect arrow-head, and we thought we would make pictures in our mind of how beautiful it was when the Indians were there, and we pictured a big bonfire and some Indians around chipping flint, and a tepee in the background with the women around getting supper or something like that.

Teacher. We are going to try to tell you now what would make the sand dunes a good place for the Indians to live.

George. Margaret and Virginia found a tree like this in the sand dunes, and they knew that the Indians had tried to get sap out of the tree. It was a pine tree. They used the sap in their canoes to fill up the cracks where the water gets in. It is called pitch.

Dorothy. In the sand dunes, the fifth grade found bones of a deer. The deer lived there until the white man came, and then they all went away. The Indians ate the deer meat, and then they made clothes out of the skins, and the ribs of the deer they put into their bows. For the strings of the



The Pitch Pine

bow they used the sinews of the hind legs. The Indians could find many other useful things in the dunes—they could find fish, ducks, squirrels, frogs, quails, corn, snipe, cactus, grapes, sandpipers, sweet grass for their baskets, strawberries, blackberries, blueberries, wood for fires, and geese.

Katherine (showing specimens of plants). Here are some of the plants we found. This is the sand cherry, about as big around as your finger nail. People make preserves out of that and jelly and wine. And then there is the pitcher plant. It holds water in the swamp, and it is full of water when you find it. I will open one for you. It is full of insects. There are little hairs on the lip, pointing down, and when a bug comes in, it can get down easy enough, but when it tries to get out it cannot get out, and it drowns, and the plant uses it for food. Then there is pokeberry that the Indians used to dye their skins with, and their bows and arrows, and people used to make ink from it. Here is some juniper, and some witch-hazel, and some wintergreen that people use for flavoring cakes and candies.

Clara (showing lists of plants written on the board). Whenever we go on excursions, we have a list of the things we find, and here are some of them. If they grow in the dunes, we put them into the list of dune plants, and if they live in the marshes, we put them into the list of the marsh. Here are some plants. Here is the sea-rocket. It belongs to the cabbage family, because it tastes something like the cabbage. This is the bug seed, because the seed looks something like a small bug. This is the chokecherry, and this is bittersweet, ground pine, and this is the gold thread. The roots look like gold threads. And this is black alder.

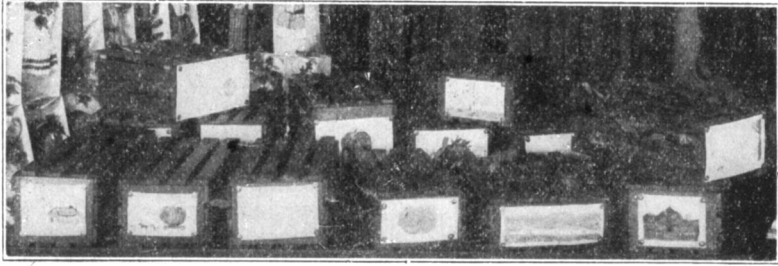
Arnold (fifth grade).² In the sand dunes we found many different kinds of plants that have different ways of coming up in the spring. Bulbs is one way. In the spring, they don't have to send out roots in the frozen ground, they send up a new plant. Roots is another way. We found plants with very strong roots, and these roots have food in them, and the plant dies right down to the ground, and the roots send up a new plant. Underground stems is another way. With the underground stem, the plant sends up a sharp bud at the end of the stem. It goes along under ground and sends up little shoots. The shoots are very sharp, so they can get through the ground easily. Then there are some plants that grow by bud. Shrubs and trees have buds on them, and in the fall the leaves fall off and the buds are on, and in the spring, they don't have to start all over. The leaves come out at these places. The leaves in the goldenrod are all around near the ground, and they keep the roots warm. They are protected down below. You all know how plants grow from seeds.

Macauley (second grade).³ I am going to tell you about the floating bog at Dune Park. It was just a mass of land floating on the water. It is marshy there and cranberries grow on it, and when you jump upon it, all the land moves like the back of a snake. Here is some of the soil that we found. The soil was very rich out there, and black, and here are some of the cranberry plants.

² This class had made some rather more mature observations of plants than the fourth grade had done, and we asked them to contribute to our exercise.

³ By special request he had been allowed to accompany us on our trip. We asked him to tell about the things that most interested him.

Clara (showing glasses and jars). These jellies and preserves, and this grape juice we made from fruit that we found at the dunes.



Crates of Jelly Made by Fourth Grade

Class Yell. "The dunes, the dunes,
The dunes for me!"